MRP Market Power Mitigation Reference Levels and Reference Quantities Workbooks

Stakeholder Feedback Form

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General feedback on Reference Level Workbooks and Guide

OPG appreciates the opportunity to provide comments on the IESO Reference Level Cost Workbooks and August 27, 2020 *Reference Levels and Reference Quantities Pre-Reading Document*, acknowledging the high level of detail contained in each document. OPG believes that more time is necessary to analyse the implications of the IESO's reference level design framework and looks forward to the opportunity to provide constructive recommendations where needed. OPG has also reproduced some of its comments on the *Market Power Mitigation Detailed Design 1.0,* given their relevance to the development of reference levels and to provide greater ease in cross referencing between comment submissions. Feedback to some of these concerns will affect the type of cost categories and the frequency of dynamic updates. OPG looks forward to the IESO's feedback on our comments, and to our constructive discussions in the up-coming resource-specific Reference Level Workbook sessions.

The comments below primarily refer to nuclear, thermal and energy storage facilities with some general comments that will also apply to hydroelectric facilities. More detailed comments for hydroelectric reference levels will be provided in a separate submission.

Need for Fair Negotiations, Appeals Process, and Governance:

- OPG appreciates and looks forward to negotiations with the IESO on the reference levels for economic and physical withholding. In the determination of these levels, there needs to be a decision-making process established for the reference level, a periodic review of these levels (say every 3 years), and an approach to address appeals from market participants.

- OPG requests the IESO provide clarification regarding the monitoring responsibilities of the IESO and MACD under the new Market Power Mitigation framework. Please provide detailed descriptions of the reporting relationships, enforcement powers, and obligations of both organizations. OPG stresses the need for a well-defined appeal process without overlap between IESO and MACD including which organization performs the MPM review/audit to maximize efficiency and minimize costs for all concerned including the ratepayer.

- The process for establishing reference quantities with market participants must be developed in consultation with market participants. This is particularly important for hydroelectric given its unique characteristics and the resulting challenges with reference quantities.

The last paragraph of Section 3.14.1 of the *Market Power Mitigation Detailed Design 1.0* (reproduced below) implies that the IESO will make final decisions on reference quantities without approval by market participants, which concerns OPG. OPG suggests a third-party mediator or arbitrator may be required to reach consensus on decisions regarding reference levels. In addition, a dispute resolution process should be developed and implemented.

"If the approach described above does not fully account for the specific operational characteristics of a resource, market participants may submit additional data and supporting documentation to the IESO during the Facility Registration process. The IESO will review and use this additional information where appropriate to establish the reference quantity of each resource."

Reference Level Design:

- Please confirm if the reference level design in the Day Ahead timeframe and the Real time frame will be different. Particularly for hydroelectric resources, there may need to be a different approach given the hourly variability in conditions and balancing risk between the two timeframes. Real time operations involve a variety of additional SEAL restrictions that cannot be accounted for fully in DA.

- Contrary to the IESO's workbooks, OPG maintains that generators incur an opportunity cost for providing OR. The IESO process should use fuel costs, opportunity costs, risk premiums, etc., in the development of Operating Reserve (OR) Reference Levels during negotiations with stakeholders. Opportunity costs for OR reference levels are distinct and may be derived differently from the opportunity cost for energy.

- Reference quantities used in Economic Withholding may need to be different from the reference quantities used in Physical Withholding.

On page 54 of the *Market Power Mitigation Detailed Design 1.0*, the design states:

"For an energy offer, the IESO will establish an energy offer reference level curve for each set of dispatch data values. This will include up to 20 non-decreasing values of the energy reference level to form a monotonically increasing cost curve. This energy reference level curve will be used for the conduct and impact testing of the price quantity pairs submitted by the market participant."

Please clarify how the energy offer reference level curves will interact with the calculation of the physical withholding reference quantity. For some resources, the MW quantities associated with each offer lamination vary daily or hourly according to real time observations of weather, energy limits, operational constraints, and forecasted conditions. As these conditions cannot be predicted at the time of reference level negotiations, OPG finds the requirement to develop a reference level curve overly complicated and operationally restrictive.

Reference Level Implementation:

- The IESO should clarify expectations and obligations regarding the differences between the derived Reference Price levels and actual Market Participant (MP) offer behaviour in the markets. It is not explicitly clear if the IESO expects MPs to offer at the price levels specified in the workbooks. If the IESO does not have any expectation of MP offer behaviour in the context of MPM, then it should be explicitly clear that in the context of the IESO General Conduct Rule (GCR), there are no assumed obligations on the MP to offer at their Reference Price Levels, and in fact, subject to the GCR, MPs are not obligated to offer in any prescribed manner.

- In addition to the comment above, OPG seeks clarity that MPs are not obligated to provide costs for inclusion into the workbooks which do not actually reflect those costs included in offers, but subject to clarification of the above comment, may have the option to do so. As an example, if a resource has a negative opportunity cost (e.g., Must-run Hydro or Nuclear), this value would not be accepted in the IESO's framework according to section 2.4.6.1, which states the floor price for opportunity costs is $0/MWh. Would such a resource be obligated to offer in accordance with the $0/MWh opportunity cost proposed by the IESO?

- The market power mitigation process needs to recognize that OPG has filed costs as part of our regulatory rate filing that are subject to the jurisdictional authority of OPG's economic regulator, the OEB. Other costs have been negotiated with OPG's contract counterparty, the IESO. Any potential difference between some of these costs in the regulated / contractual process and the market power mitigation process as a result of a different methodology or approach in their derivation needs to be carefully reviewed with the IESO.

- OPG would appreciate further details on how the IESO intends to apply Administrative Pricing principles (Market Manual 4.3, Section 9) to LMPs (as opposed to the current uniform pricing) in the event reference prices are determined to be incorrect. This is important as the two-day timeline associated with the IESO issuing administrative pricing means participants must have the opportunity to appeal the issued reference price within two days. Section 3.15 of the Market Power Mitigation Detailed Design 1.0 states that if a participant disagrees with the IESO determined reference price and the price is not changed prior to dispatch "Market participants will be able to submit a NoD when the reference level that was used as an input in the settlement process utilized a value for an eligible cost that was lower than ought to have been the case." As the NoD process cannot be initiated until the preliminary settlement statement is received (ten business days after the fact), the IESO will be unable to administer prices with the correct reference prices. OPG believes a more expeditious process should be available for market participants to appeal reference prices prior to administrative pricing deadlines.

- Section 3.13.1.1 of the *Market Power Mitigation Detailed Design 1.0* states:

"If a resource has not established an operating reserve reference level, the IESO will use a default reference level of $0.10/MW."

A default reference level for OR would need to be negotiated with MPs. Foregoing such negotiations may not yield a collaborative outcome with maximum system benefit.

- The first paragraph of Section 3.15 of the *Market Power Mitigation Detailed Design 1.0* states:

  "As discussed in Section 3.13: Reference Levels, the IESO will set the cost-based reference levels for financial offers in advance of the day- ahead market trading day. The IESO will provide market participants with an opportunity to update certain cost values that will be used to set the reference level for a resource prior to running the DAM, PD and the RT calculation engines as described in Section 3.13.1."

  OPG would like some clarity on how these reference levels will be reported and at what time. OPG proposes that Reference Levels are published prior to DAM submission deadline and hourly during the Pre-dispatch timeframe for market participants to review and update their offers/bids accordingly.

- Section 3.2.3 of the *Single Schedule Market High Level Design* discusses the potential for market power abuse via uneconomic production, which the IESO describes as occurring when MPs intentionally offer below cost in order to increase their settlement price. As the document states:

  "The IESO will determine when resources are contributing to congestion and if their offers meet criteria specific to uneconomic production. In this case, mitigation will result in offers being increased to their reference levels."

  This language is inconsistent with Tables 3-5, 3-7, 3-9 of the *Market Power Mitigation Detailed Design 1.0*, which state that resources whose offer prices are below $25/MWh will be excluded from economic withholding tests. Could the IESO confirm that this is consistent with their intent?

Nuclear Resources:

The proposed reference level methodology for nuclear is overly complex with limited benefits to the IESO, market participants, and customers. OPG finds the proposed cost methodology does not align with the offer strategy employed by OPG described in the Market Surveillance Panel (MSP) reports. MSP Report 32 issued July 2020 notes:

"Ontario's nuclear plants are either rate-regulated or subject to contract prices. In the current monitoring period, they set the MCP in less than 1% of all intervals (see Figure A-7 in Appendix A). Because marginal costs are very low, the Panel expects these plants to offer close to zero, but because shutdown is extremely costly for nuclear plants, they might offer very negative prices to ensure they are dispatched."

The unique operational constraints for nuclear generators ensure that OPG would never reasonably risk offering at high prices to trigger the conduct test. Given these drivers, as well as the observations of the MSP, OPG believes the information required by the Nuclear reference price workbook is excessive. Instead, OPG proposes a simpler approach applying the $25/MWh ($35 / MWh in Cdn $ as proposed by OPG in its comments on the *Market Power Mitigation Detailed Design 1.0*) floor price provided by the IESO in the *Market Power Mitigation Detailed Design 1.0* (Tables 3-5, 3-7, and 3-9) as a reference level. As OPG's nuclear offer prices are always below $25/MWh ($35 / MWh Cdn), and the trigger for a conduct test is $25 / MWh ($35 / MWh Cdn), there is little benefit to identifying and negotiating cost components for financial reference levels.

- In the case of a nuclear unit's return to service, a risk premium may be needed in the DAM to insure against possible late return to service and real time losses. OPG proposes that the IESO explicitly include such a premium in reference levels for nuclear units.

Thermal Resources:

- Much of the proposed reference cost methodology aligns with the cost information required by the current RT-GCG program. However, OPG notes that the unique operating characteristics and maintenance costs associated with different thermal fuel types need to be considered. The reference level guide lists the eligible maintenance costs for "Combined Cycle Steam Resources and Fossil or Biomass Steam Resources" under a single section heading. While there are similarities between these resources, the incremental variable maintenance costs submitted for each will be quite different. The detailed comment section below contains discussion of specific cost components.

- Regarding dual fueled resources, Section 3.13.1.2 of the *Market Power Mitigation Detailed Design 1.0* states that:

  "The IESO will use the least expensive fuel type among the registered primary and secondary fuel types for a resource's reference level for the timeframe when it tests a submitted offer for market power. Market participants can request the IESO to change this default fuel type selection if the least expensive fuel (in $/MWh), as flagged by the market participant and approved by the IESO, is unavailable or not preferred because of an acceptable reason for the specific subset of hours during the trading day."

  This methodology is simplistic and does not take into consideration the number of factors that determine which fuel is least expensive. OPG recommends further discussion between market participants and the IESO as part of the reference level negotiation for energy offer

curves to account for situations where the energy offer curves of the two fuels cross.

- Determining fuel costs for facilities that do not have firm gas contracts is challenging in both day-ahead and real-time. The IESO needs to recognize the unique challenges around fuel availability, procurement, and transportation. This will be a key consideration in discussions with the IESO in setting appropriate reference levels for dual-fuel resources and reporting on the use of different fuels.

- In addition, there should be a method for market participants to submit outages for specific 'fuel types', without impacting the availability of the resource, as they would be available on the alternative fuel. Without such a system, MPs could foreseeably trigger ex- ante economic withholding tests when a less expensive fuel type is unavailable. Solving the treatment of reference levels for dual fuel resources during negotiations will avoid the administrative burden discussed in Market Settlements DES-28 Section 3.13.2 Reference Level Settlement Charges (RLSC) and 3.13.3 Reference Level Settlement Charge Uplift (RLSCU)."

- The *Offers, Bids, and Data Inputs Detailed Design 1.0* states:

  "*The PD calculation engine will determine which one of the three MGBDT values to use based on the number of hours the generation unit has been offline. A NQS generation unit will be considered offline by the PD calculation engine if it is scheduled below its MLP value by the PD calculation engine.*"

  Using predefined MGBDT values to determine if Hot/Warm/Cold dispatch data applies for pre-dispatch calculation may not accurately reflect the condition of a plant. The condition of thermal plants can vary start-to-start, and thus modifications to hot, warm and cold lead times may be necessary during the day. The thermal state of a NQS unit is determined by its turbine temperatures and can only be accurately determined by the unit operator.

  OPG requests the IESO publish an hourly standardized confidential report to indicate the inferred state of the generation unit and suggests that a mechanism or process be put in place that allows modification of the Lead Time parameter for SEAL and operational reasons to ensure the accurate thermal state is reflected in the market.

Energy Storage Resources (ESRs):

OPG notes that NYISO, MISO, and ISONE do not subject ESRs to Market Power Mitigation. Given the lack of precedent, OPG would appreciate an explanation from the IESO and Hatch that describes potential abuse of market power by ESRs, as well as more detail on the development of the reference level framework proposed for ESRs.

- As stated in 2.4.6 Opportunity Costs:

  Dispatchable resources with intertemporal production limitations, such as hydroelectric and storage resources, may face an opportunity cost when they offer to inject energy. These resources may sacrifice the opportunity to produce energy in a future interval by producing it in the current one given operational limitations… Such intertemporal opportunity costs can be included in the energy reference level for relevant resources. Opportunity costs for these resources represent the expected future revenues that market participants give up when these resources produce a MWh of energy in the current time period."

  OPG agrees that ESRs incur an opportunity cost. However, there is currently no entry for Opportunity Cost in the Energy Storage workbook. This cost should be reflected as a separate cost category in the ESR Reference Level Workbook. As with hydroelectric resources, market participants should have the chance to defend opportunity cost formulations that differ from the IESO's proposal in Section 2.4.6.

#	Section/Workbook	Theme	Comment Name	Detailed Comment
1	2.3 Supporting Documentation	Forms of Documentation	**More Forms of Documentation Should be Acceptable**	The list of accepted supported documentation provided by the IESO should be expanded beyond what the IESO has identified in this section. In the event that original manufacturers' manuals are unavailable, the IESO should accept documentation developed by the asset owner.
2	2.4.6.1 Opportunity Cost	Opportunity Cost	**Opportunity Cost Floor Price**	The section states that the minimum value for the opportunity cost adder is $0/MWh. Some resources may incur a negative opportunity cost, i.e. avoided costs (e.g., Nuclear resources and Must-run Hydro resources) which incentivizes the unit to remain online. OPG recommends allowance for negative opportunity costs.
3	2.4.6.1 Opportunity Cost	Opportunity Cost	**Opportunity Cost Calculation May have Unintended Outputs**	OPG is concerned that formula presented by the IESO does not accurately capture costs as the IESO intends. In particular, OPG has reservations about the use of prior year LMPs to calculate opportunity cost given the number of other variables that could affect market prices, such as: I. unit outages, II. transmission outages, III. changes in weather, and IV. differences between LMPs on weekdays and weekends.
4	2.5.1.5.3 Service Price Adder	Non-firm Transport Costs	**Variability of Non-Firm Transport Costs**	Determining fuel costs for facilities that do not have firm gas contracts is challenging in both the day-ahead and real-time. The IESO needs to recognize the unique challenges around fuel availability, procurement, and transportation. In the absence of a firm contract, gas transport costs can vary substantially due to factors like weather, demand, and scarcity. These conditions cannot be predicted with any accuracy during reference level negotiations. In the Thermal Reference Level workbook, the IESO suggests the service price adder can be substantiated with *"Copies of the transportation, storage and load balancing contracts outlining the requirement to provide fuel to acquire the services."* For a resource without a firm transport contract, OPG maintains that such documentation of gas transactions usually becomes available only in the DA timeframe, and in some cases not until real-time. OPG suggests a process must be in place to allow MPs to submit and receive approval of this documentation in real time. If the IESO is unable to enhance their processes, OPG suggests the settlement process should use timelines similar to the current RT-GCG program which allows expense information to be submitted within a reasonable number of days after the fact.

5	2.5.1.5.5	Emissions Costs	**Output-Based Performance Standards No Longer Applicable**	As the IESO is likely aware, since publishing of the workbooks, the federal government has accepted Ontario's Emissions Performance Standards program as an alternative to the Output-Based Pricing System. This section should be updated to reflect the change.
6	2.5.1.6 Operating and Maintenance Costs	Maintenance Cost Categories	**List of Eligible Incremental Variable Maintenance Costs is not Exhaustive**	OPG has identified incremental variable costs that are not included in the reference level workbook. Some of these costs are: I. biomass material handling systems including pulverizer maintenance, II. feedwater piping repair, III. high voltage electrical equipment maintenance, IV. water treatment plant service. OPG views the list of eligible maintenance costs provided by the IESO as incomplete. Any other incremental variable costs that can be documented, quantified, and substantiated by MPs should be accepted in the reference level workbooks.
7	2.5.6 Energy Storage	Pumped Hydro as Energy Storage	**Pumped Hydro Fuel Costs Should be Included in ESR Workbooks**	Section 2.5.6 states *"Energy storage resources store energy in the form of compressed air, flywheel, flow battery, rechargeable battery and hydrogen storage."* Under the Interim Storage Design Project (SDP), new Market Rules/Manuals may require current and future Pumped Hydro facilities to be registered as Energy Storage Resources (ESRs). Pumped Hydro facilities are inherently complex. Specifically, OPG's PGS is not a stand-alone facility, and has intertemporal effects with other hydroelectric generators. In order to provide flexibility for market participants, the cost components associated with pumped storage should be factored into both the Hydroelectric and Energy Storage workbooks.
8	3 Non-Financial Dispatch Parameters	Non-Financial Dispatch Parameters	**Changes to Non-Financial Dispatch Parameters**	The opening paragraph of this section states: *"If the registered values are not static, the reference level values for non-financial dispatch data parameters are determined, where applicable by season (summer and winter)."* The above text implies that only seasonal variation in non-financial reference levels will be accepted. OPG maintains that some nonfinancial reference levels (e.g., lead time) vary hourly. Can the IESO clarify whether intra-day changes to non-financial dispatch variables will be accepted?

9	3.2 Ongoing Updates to Non-Financial Reference Levels	Process Documentation	**Process to Request a Change to Reference Levels is not Clear**	The section states: *"At its own volition, the IESO may initiate the process to request a change to reference levels if the IESO is of the view that the registered non-financial reference level is no longer representative of the operational characteristics of the resource."* Please outline the "process to request a change to reference levels" that is referenced in this section.
10	3.4.5.1 Nuclear Energy Ramp Rate	Energy Ramp Rate Variation	**Ramp Rates Vary Depending on System Conditions**	The section states: *"Market participants must provide ramp rates and supporting documentation with relevant sections from operating and maintenance manuals for the resource that show the ramp rates (MW/min) for the resource across its dispatchable range."* OPG contends that the ramp rates of nuclear units vary substantially depending on reactor conditions. The ramp profile of a nuclear unit cannot be specified ahead of time in reference level negotiations.
11	4.1.1 Energy	Thermal Reference Quantities	**Clarification of Process for Determining Reference Quantities**	The section states that reference quantities will be determined in accordance with the methodology of the Generator Output and Capability report. OPG requests the IESO to confirm which values are used as the unit capability in this report (e.g., registered capacity, MCR, nameplate capacity, etc.).
12	4.2.2.2 Operating Reserve	Clarification Needed	**Possible Typo in Subheadings**	Sections 4.2.2.2.2 and 4.2.2.2.3 are in the hydroelectric operating reserve reference quantity section but refer to thermal operating reserve. OPG believes this may be a typo but would like clarification.